

AKG ACOUSTICS

THE POWER
OF A
NEW ERA



WMS 4000
ULTRAHIGHFREQUENCY



SOUNDS.BETTER.WMS 4000.

BACKGROUND. Professional wireless users have long sought "tools of the trade" that provide a balance of uncompromised audio with superior wireless performance. This challenge motivated AKG's engineers to create a system that offers both complex technology and incredible functionality.

AutoSetup and EnvironmentScan PC
Easy to Use Backlit Displays

THE WMS 4000 SYSTEM. The new WMS 4000 transforms concert performances, corporate presentations and worship leadership into satisfying experiences. The combination of quality engineering, exceptional flexibility, total versatility and user friendly operation has evolved into an exceptional new wireless system from AKG. Experience the creative power of AKG.

Modular System

TECHNOLOGY TO MAKE



True Diversity
Wideband UHF **High RF Output**

Control

Plug-in Battery Charging System

SBMS

Smart Battery Management System

Battery Life – 15 hours

with 2 AA size batteries

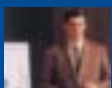
3

Components

Interchangeable Microphone Elements

AKG's Exclusive Acoustic Technology

Y O U R W O R L D B E T T E R



Speech
Reinforcement



Vocals



Guitar/Bass



Instruments



Installed
Sound



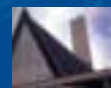
Live Sound



TV Studio



Theater



Houses
of Worship

HT 4000. HANDHELD TRANSMITTER.

SIX INTERCHANGEABLE MICROPHONE ELEMENTS



100% AKG Acoustics:
TEC Award winning C 900
Emotion Series D 880
Tri-Power D 3700, D 3800, C 5900,
C 535.

STATUS LED

Indicates the system's
current operating status.

BACKLIT DISPLAY

Ensures easy setup and
accurate status monitoring
even on a dark stage.

SOFT TOUCH ENAMEL FINISH

Helps reduce handling noise.

Transform Yourself. Capturing every nuance of vocal expression, the WMS 4000 System amplifies the energy of your performance and expands the interaction between artist and audience. Thus, the system creates satisfaction from an engineering perspective, as well the higher level of artistic communication.

The pilot tone system transmits all important transmitter data to the receiver for reliable, interference-free operation.

The revolutionary WMS 4000
CU 4000 charger and BP 4000
battery charging simple and r

The SBMS Smart Battery Management System ensures a battery life of 15 hours or 12 hours with the BP 4000 battery pack.

JOG SWITCH

Easy-to-use, single control for setting
all function parameters.

CHARGING AND PROGRAMMING CONTACTS

Allows the optional BP 4000 battery pack
to be charged inside the transmitter and
new frequency Presets to be programmed by
the AKG Service Department.

ELECTRONICALLY LOCKABLE ON/OFF BUTTON AND PROTRUDING MUTE SWITCH

Easily distinguishable, the two controls
provide simple, but important functionality.



HT 4000



PT 4000

SR 4000

CU 4000

PS 4000

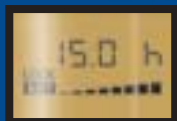
SRA 2B

PSU 4000

HPA 4000

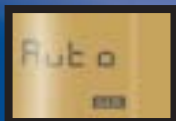
MCS 4000

PT 4000. POCKET TRANSMITTER.



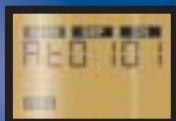
REMAINING BATTERY LIFE

The remaining battery life is illuminated in hours.



GAIN MENU

The Gain menu provides a choice of manual and automatic gain setting modes.



FREQUENCY PRESETS

Intermodulation-free frequencies for setting up a multichannel system quickly and easily.

charging system includes the optional 0 battery pack. This system makes reduces operating costs considerably.

s with a pair of AA size batteries

A wide choice of selectable frequencies provides enough usable frequencies for large multichannel systems. Factory Presets make it easy to find suitable frequencies.

.1" JACK FOR REMOTE MUTE SWITCH

Allows easy muting even if the bodypack transmitter is concealed.

ELECTRONICALLY LOCKABLE ON/OFF BUTTON AND PROTRUDING MUTE SWITCH

RUGGED, PROFESSIONAL 3-PIN MINI XLR CONNECTOR

Accepts all AKG microphones with a mini XLR connector including MicroMics, CK 77 WR and Discreet Acoustics Modular Series lavalier modules, etc.

STATUS LED

BACKLIT DISPLAY

ENSCRIBABLE COLOR CODE ELEMENT

MAGNESIUM BODY

Light and extremely rugged.

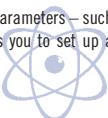
CHARGING AND PROGRAMMING CONTACTS



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HELPFUL HINTS

WMS 4000 transmitters provide a "SILENT MODE" in which you can set all system parameters – such as carrier frequency, gain, etc. – without transmitting an RF signal. This allows you to set up a replacement transmitter behind the scene without disrupting a performance.

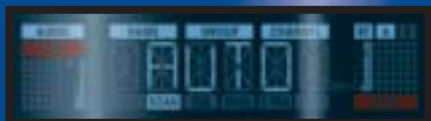


TECHNICAL NOTE

The HT 4000 and PT 4000 transmit a pilot tone (approx. 30 KHz) "hidden" inside the radio signal to the receiver. This allows the pilot tone detection circuit of the receiver's Tone Code Squelch (TCSQ) to determine whether there is an active transmitter inside the coverage area and then activate or mute the audio output without any noise. In addition, important transmitter status information such as remaining battery life and the MUTE switch position can be shown on the receiver's display.

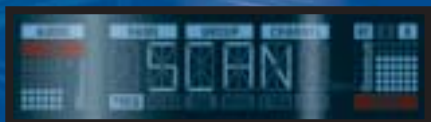
SR 4000. STATIONARY RECEIVER.

True Diversity ensures maximum reliability of reception and a 30 MHz wide UHF channel provides enough room for many simultaneous channels to operate together.



AUTO-SETUP

Finds usable frequency groups and sets frequencies automatically.



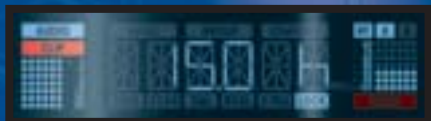
ENVIRONMENT SCAN

Analyzes the UHF environment to ensure interference-free transmission.



REHEARSAL

This function records transmission parameters used in practice in order to facilitate system setup for actual performances.



REMAINING BATTERY LIFE DISPLAY

Indicates current battery capacity in hours.

AutoSetup and
EnvironmentScan

ANTENNA



Switchable pilot tone detector

Includes transmitter data processing and automatic TCSQ Tone Code Squelch circuits. The pilot tone detector can be deactivated if necessary and the squelch threshold set n

H E L P F U L H I N T S

ENVIRONMENT SCAN AND REHEARSAL FUNCTIONS. The SR 4000 provides a number of useful functions that make setting up a professional system simple and considerably improve operational dependability. Environment Scan examines the receiver's local RF environment and warns of any interfering frequencies such as active TV transmissions, etc. The Rehearsal Function is another early warning system that records the most important transmission parameters and can be used during the soundcheck to identify potential problems ahead of time.

T E C H N O T E

MULTICHANNEL CAPABILITY, FREQUENCY MANAGEMENT, AUTO SETUP. Its wide frequency range and 1200 selectable frequencies make the WMS 4000 an excellent choice for multichannel systems. The built-in frequency management system helps you find the most reliable frequencies. Each factory preset provides a set of intermodulation-free frequencies. The Auto Setup function rapidly identifies "clean" frequencies. For a FREE download of the AKG frequency management program for your PC, visit www.ake.com/frequencies.

BNC ANTENNA INPUTS

For connecting a pair of antennas or a complex antenna network.

LOCKING DC INPUT

For secure connection to a local or central power supply, e.g., PSU 4000.

LOGIC OUT

For remote control of functions on external devices such as automatic microphone mixers or media control systems.

DATA I/O

For remote control from a PC using MCS 4000 control software.

PROFESSIONAL XLR AND 1/4" AUDIO OUTPUTS

With output level selector.

ALL-METAL HALF-RACK CASE

Complete with rugged rack mounting kit.

BACKLIT DISPLAY

High-contrast "black mask" color display provides a clear readout of all system parameters.

PROGRAMMABLE STATUS LED RING

Provides a clearly visible indication of battery, audio level, RF level, or diversity status.

JOG WHEEL

For easy receiver setup.

Allow control and monitoring of multichannel systems from a PC.

manually.

T E C H N O T E

FIRMWARE REPROGRAMMING. The wireless world changes rapidly and so do frequency plans all over the world. Therefore, many less flexible systems may not be used legally when their programmed frequencies are reallocated. If the need arises, authorized AKG Service Centers will be glad to reprogram all WMS 4000 components for new frequencies quickly to "legalize" your system again.



CONFIDENCE. Dependability overcomes concern. You're no longer at the mercy of conventional equipment and its inconsistencies, but free to maximize your creativity. Interference-free reception, accurate response and dependable technology free your mind to focus on what you do best...perform.

HT 4000

PT 4000

SR 4000

CU 4000

PS 4000

SRA 2B

PSU 4000

HPA 4000

MCS 4000

CU/BP 4000.CHARGINGSYSTEM.

CU 4000 Charger

Charger for two HT 4000/PT 4000 transmitters or BP 4000 replacement battery packs. Battery packs charge quickly and easily without having to be removed from the transmitter. The Quick Charge System will charge batteries to capacity within one hour or less.

The SBMS system permanently monitors battery parameters. If necessary, a recovery function allows “aging” battery packs to be “rejuvenated” to prolong their useful life.

CHARGING STATUS LED

RECOVER BUTTON AND LED

Starts a battery recovery cycle. The SBMS detects and indicates the need for battery servicing, which will prolong the useful life of the battery pack.

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Processor controlled
monitoring intelligence

Maximum convenience: The SBMS Smart Battery Management System monitors the charging process to prevent battery pack overcharging and ensures more than 1000 complete charging cycles per battery pack.

H E L P F U L H I N T S

BATTERY CARE. Rechargeable batteries are known to suffer from “memory effect”. The capacity of a rechargeable battery will decrease over time if it is not fully discharged. If a battery is discharged only to 50% of its capacity over many charging cycles, it finally “believes” its capacity is only 50% and cannot be fully charged any more. To eliminate memory effect, we recommend completely discharging and recharging the battery pack periodically (recovery cycle). The SBMS permanently monitors battery parameters and detects the need for a recovery cycle. The RECOVER LED-lights to indicate it is time for servicing the battery pack. Since a recovery cycle may take 14 hours, the best time to run it is during the night. In any case, you will need to start the recovery cycle manually. If you service your battery pack regularly it will retain its maximum capacity throughout its useful life.

Two-compartment power management allows simultaneous quick-charging of two battery packs.

HT 4000

PT 4000

SR 4000

CU 4000

PS 4000

SRA 2B

PSU 4000

HPA 4000

MCS 4000



TWO UNIVERSAL CHARGING COMPARTMENTS

Accepts HT 4000 and PT 4000 transmitters or BP 4000 battery packs.

LOCKING DC INPUT

For secure connection to a local or central power supply, e.g., PSU 4000.

Several chargers can be mounted in a rugged flightcase as a compact, "roadworthy" solution for large systems.



BP 4000 intelligent, quick-replacement battery pack

INTERNAL RAM

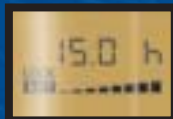
Stores charge/discharge process data and provides a database for optimizing charging parameters (Charge Balance Management).

DATA INTERFACE

Sends battery status information to the transmitter electronics for accurate capacity readout.

INTEGRATED TEMPERATURE SENSOR

Protects the battery pack from overcharging and damage.



REMAINING BATTERY LIFE READOUT

Displays the current battery capacity in hours.



T E C H N O T E

SMART BATTERY MANAGEMENT SYSTEM. An environmentally friendly money saver, the SBMS Smart Battery Management System is the heart of a completely new charging technology. It monitors battery status and controls the charging process. The battery status visibly seen in remaining hours of battery life on the transmitter and receiver displays, so you can recharge the battery pack before it loses power. The SBMS includes a number of intelligent monitoring functions. Inflection Point and Peak Voltage Detect stops the charging in time, while an integrated temperature sensor in the battery pack protects the battery pack from overheating. The Charge Balance Management feature makes sure that only as much energy will be fed to the battery pack as had previously been drawn from it. A self-discharge counter ensures correct charging after the battery pack has been stored for a long time. The battery pack uses an integrated database and charger interface to set its own charging current.

s, easy to use

Plug-in battery charg

HT 4000

PT 4000

SR 4000

CU 4000

PS 4000

SRA 2B

PSU 4000

HPA 4000

MCS 4000



PS 4000 ANTENNASYSTEM.

THE SPIRIT OF EXCELLENCE. The WMS 4000 tells a story of team spirit and excellence in engineering. The knowledge and creative resources of AKG designers, supported by painstaking attention to every detail, made this excellent system possible. We are witnessing a new era of wireless technology that offers an entirely new meaning to the word "professional". It brings perfection in its purest form to the world of professional audio.

LOCKING DC INPUT

For secure connection to a local or central power supply, e.g., PSU 4000.

STATUS DISPLAY

Lets you check the current operating condition of the entire antenna network at a glance.

SWITCH BANK FOR MATCHING THE UNIT TO THE CONNECTED CABLE LENGTH

Set of calibration switches for optimizing RF input signal quality.

Wideband antenna splitter for four SR 4000 receivers. Expandable for up to 50 or more receivers. Optimum performance at a reasonable cost.



The antenna inputs and outputs carry a power bus for remote powering of connected antenna system components. This keeps wiring simple and ensures quick and easy system installation.

HELPFUL HINTS

SELECTING AND PLACING RECEIVING ANTENNAS. The receiving antenna is the "ear" of a radio system. To get the best possible signal quality, select and place your antennas carefully. Antennas have polar patterns like microphones, so depending on the application at hand you may need Yagi (cardioid/hypercardioid), log periodic (shotgun), or omnidirectional antennas. If the transmitters will be used within a rather small area such as a stage, use directional antennas. Directional antennas are generally used to overcome long distances or suppress off-axis interference, e.g., in open-air concert situations. Omnidirectional antennas are ideal for near-field applications where no off-axis interference is expected, e.g., indoor events (most directional antennas are big and difficult to conceal) or multipurpose halls with no preferred direction.

SRA 1 passive, wideband directional antenna

- For indoor or outdoor use, specifically, for setting up long-range radio links (up to 100 m/330 feet)
- For use with antenna cables up to **5 m (16 feet)** long
- Water-resistant case, BNC output



SRA 2B active, wideband directional antenna

- For indoor or outdoor use, specifically, for setting up radio links for distances up to **300 m (approx. 1000 ft.)**
- Integrated high-performance antenna booster for use with antenna cables up to **200 m (approx. 655 ft.)** long
- **Remote powering option**
- Water-resistant case, BNC output
- Status LED
- Optional laser positioning pointer



RA 4000 B omnidirectional wideband booster antenna

- For indoor or outdoor use, specifically, for near-field antenna setups with no preferred direction
- Integrated high-performance antenna booster for use with antenna cables up to **180 m (approx. 600 ft.)** long
- **Remote powering option**
- Rugged, water-resistant case, BNC output
- Status LED



AB 4000 antenna booster

High-performance antenna booster for inserting into long antenna cables. One AB 4000 can compensate for approximately 17 dB of cable attenuation, allowing RG 213 cable runs to be extended by approx. 60 m (200 feet). Up to three AB 4000 boosters can be used in series for extremely long cable runs.

- BNC or N input and output
- DC input
- Status LED
- Water-resistant case



ASU 4000 Remote power supply

Remote power supply for complex antenna networks

- BNC or N input and output
- Locking DC input
- Status LED
- Water-resistant case

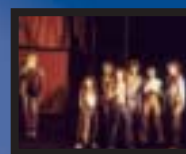


CABLES

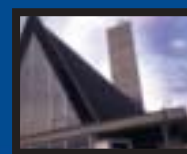
RG 58 antenna cables are available in various lengths for applications from small clubs to large stadiums. Antenna cables of other types are available upon request.



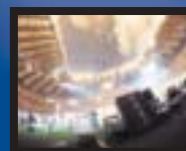
TV studio



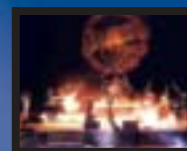
Theater



House of Worship



Installed sound



Live sound

11

Dedicated accessories

Flexible, modular, cost effective accessories are available for setting up antenna networks of any level of complexity. WMS 4000 accessories provide optimum wireless solutions for applications from small houses of worship to huge stadiums.

T E C H N O T E

SELECTING CABLES/CABLE ATTENUATION/COMPENSATION. Antenna cables feed the output signal of a remote antenna to the receiver. Any cable, however, will attenuate the antenna signal. Since different types of cables have different attenuation values, each type will perform best at a different length. Although low-attenuation cables are usually thicker and more expensive than lower-grade cables, they can be used for much longer runs. You can compensate for high cable attenuation by using antenna boosters or active antennas. In some cases, however, using the next higher (if slightly more expensive) grade of cable may do the trick, eliminating the need to use active antenna components. The right type of cable can be essential to the performance of your wireless system, prevent problems, and help reduce costs. For more information contact AKG Acoustics, your local AKG supplier or visit www.agg.com.



HUB 4000 NETWORK CONCENTRATOR.

HUB 4000

PC network interface for connecting up to eight SR 4000 receivers to an Ethernet network. The HUB 4000 can be expanded as desired using standard PC components such as Ethernet hubs or wireless LAN interfaces.

ON/OFF SWITCH

STATUS LED

ACTIVE CHANNEL
DISPLAY



DATA I/O

For reliable communication with a PC and the MCS 4000 Mission Control Software.

8 NETWORK CONNECTORS

For up to eight diversity receivers.

LOCKING DC INPUT

For secure connection to a local or central power supply, e.g., PSU 4000.

12

A sing

Clear, easy-to-read graphic representation of the local RF environment for optimal fr

PURE PERFECTION. Our customers' stringent requirements provided the original inspiration for our engineers. Their dreams materialized into a line of precisely matched components that make the WMS 4000 Series an indispensable tool for professional wireless applications. Driven by a broader vision of audio technology, the innovative spirit of AKG has created a system of unique adaptability for any live sound situation. It is an excellent choice for every venue and every kind of event. Its integrated intelligence enables the system to be expanded easily as the evolution of audio technology progresses. The WMS 4000 is designed and built to stand the test of time.

H E L P F U L H I N T S

PC SUPPORTED ONSTAGE SETUP. You can make your wireless multichannel system even easier to use and even more reliable by connecting the WMS 4000 network components to standard computer peripherals. This allows you to send receiver data through the HUB 4000 to a wireless LAN and receive them on a tablet PC. You can take the computer on the stage and monitor important parameters such as RF levels right where the action is. This speeds up system setup and increases the reliability of the wireless system.

HT 4000

PT 4000

SR 4000

CU 4000

PS 4000

SRA 2B

PSU 4000

HPA 4000

HUB 4000

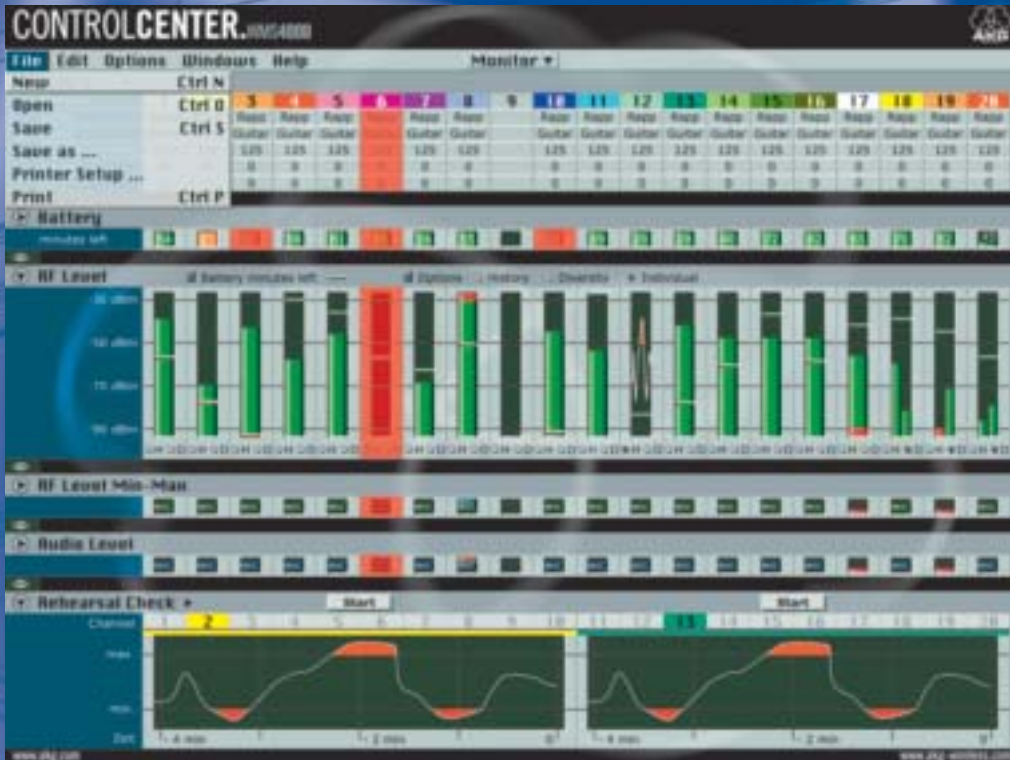


MCS 4000

MISSIONCONTROLSOFTWARE.



MORE INFO



13

Single screen shows all important parameters.

Frequency setting.

MCS 4000

Remote control and remote monitoring software. Displays all status indicators of a complete multichannel system on a single screen. Special indicators including minimum/peak bar graph meters show current signal levels and give an indication of overall signal quality. The program includes a graphic spectrum analyzer and a frequency management database that can be updated through the Internet.

System programming from a computer

Program your multichannel system in a series of easy steps. Frequency Presets can be updated via the Internet.

T E C H N O T E

"GET-A-CUP" SETUP. Finding and setting the right frequencies for a multichannel system is a difficult and time-consuming job. The WMS 4000 provides several functions including AutoSetup and EnvironmentScan to speed up the process. The MCS 4000 from AKG is an incredibly convenient software tool. It scans the system's UHF band and uses an integrated frequency management database to calculate optimum frequencies. It automatically programs the frequencies into the receivers via the HUB 4000 to complete the setup while you wait just a few minutes.

HT 4000

PT 4000

SR 4000

CU 4000

PS 4000

SRA 2B

PSU 4000

HPA 4000

MCS 4000



HPA/PSU 4000.

HPA 4000 headphone amplifier

Headphone amplifier with eight inputs for SR 4000 receivers and one headphone output.

ON/OFF SWITCH

HEADPHONE JACK

DISPLAY indicates the current active channel.

JOG WHEEL

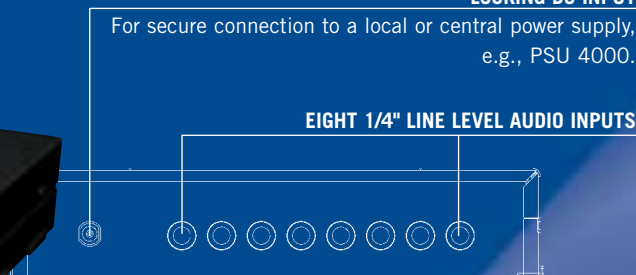
Selects the signal you wish to monitor and sets the volume.



LOCKING DC INPUT

For secure connection to a local or central power supply, e.g., PSU 4000.

EIGHT 1/4" LINE LEVEL AUDIO INPUTS



PSU 4000 central power supply

Powers up to 12 SR 4000 receivers plus antennas via three PS 4000 antenna splitters to keep wiring simple. Also powers the CU 4000, HPA 4000, and HUB 4000.

ON/OFF SWITCH

STATUS DISPLAY



3 DC OUTPUTS

100 VAC - 230 VAC INPUT



Microphones for the HT 4000



D 880 WL 1 D 3700 WL 1 D 3800 WL 1 C 900 WL 1 C 5900 WL 1 C 535 WL 1 GN 15 HT

Microphones for the PT 4000



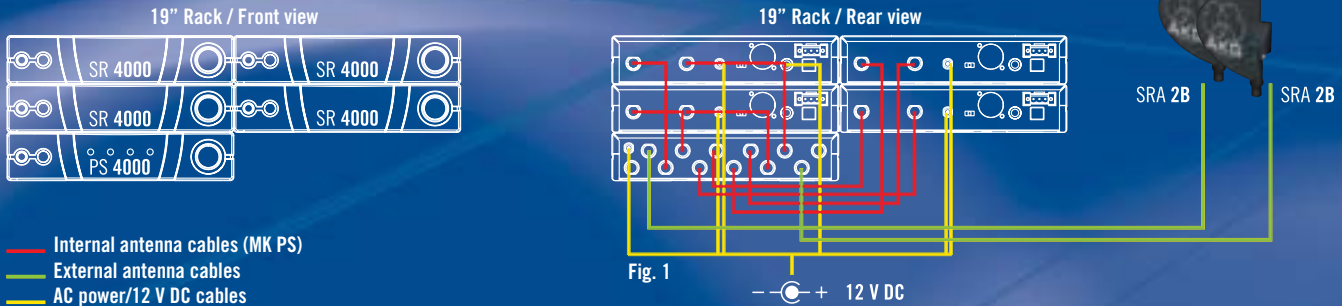
LM 3 L C 411 L C 416 L C 417 L C 419 L D 409 L C 420 L C 444 L C 477 WR L CK 55 L CK 77 WR L



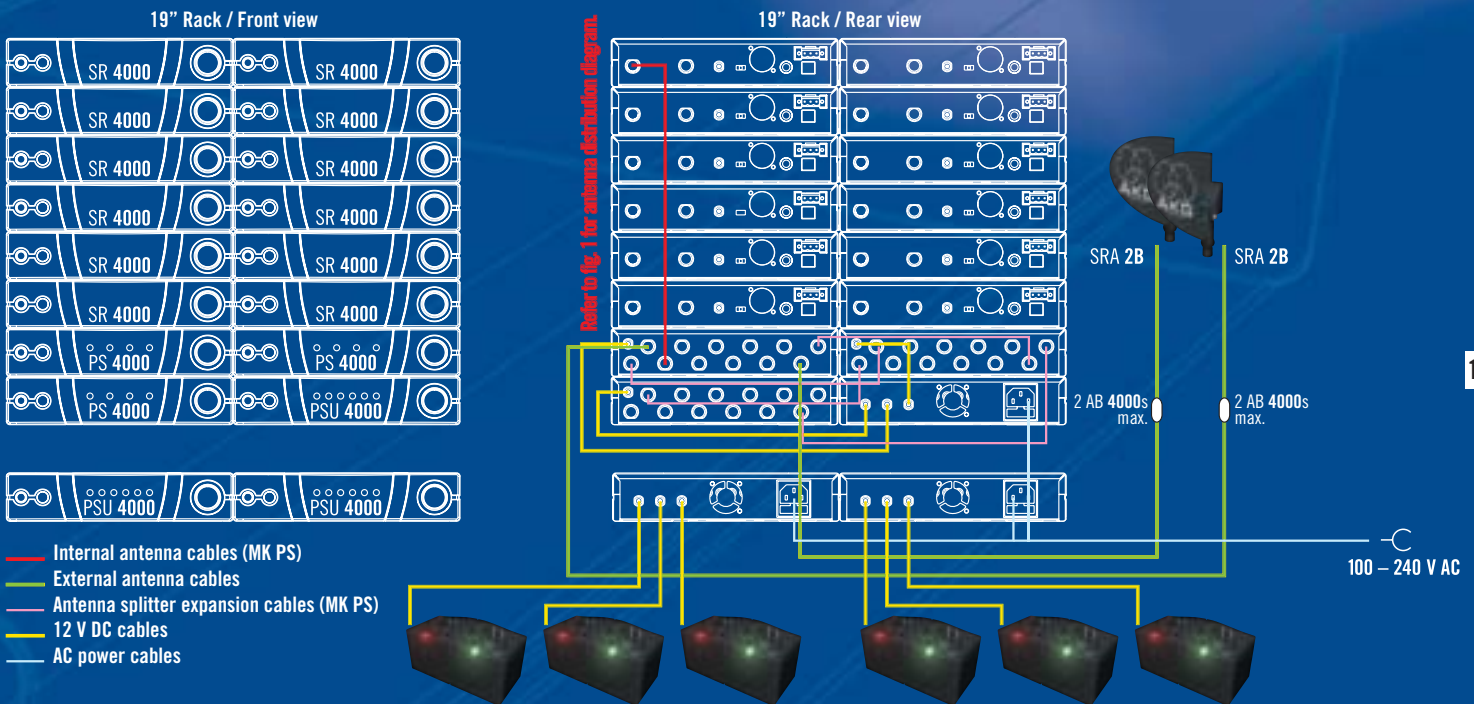
HT 4000 PT 4000 SR 4000 CU 4000 PS 4000 SRA 2B PSU 4000 HPA 4000 MCS 4000

APPLICATIONS.

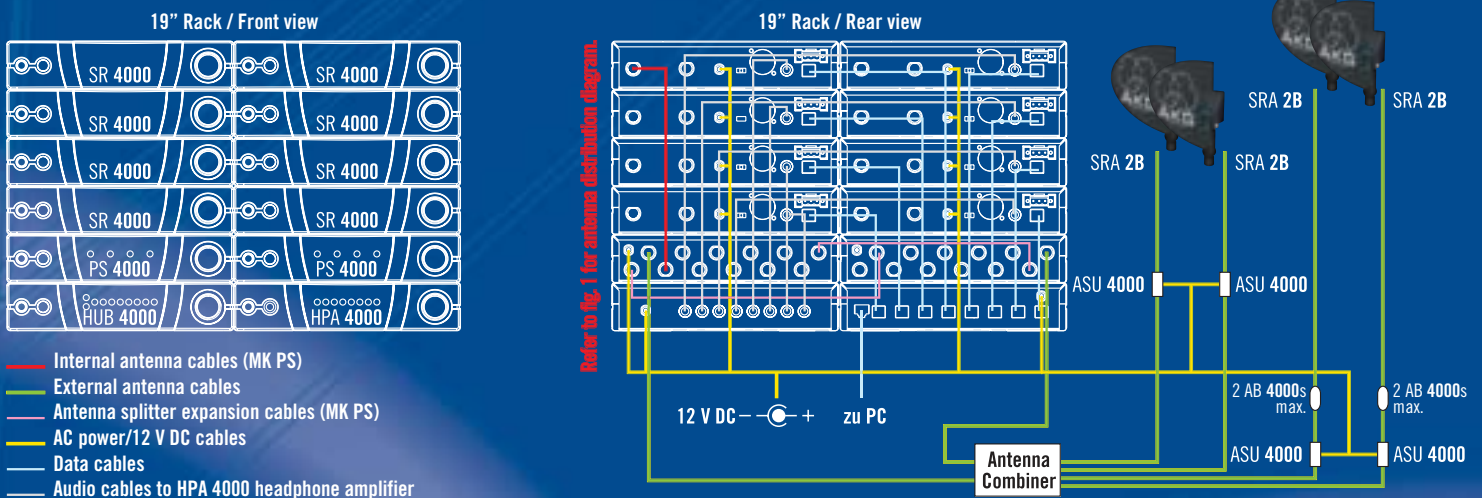
1. MULTICHANNEL SYSTEM WITH MEDIUM-LENGTH CABLES



2. MULTICHANNEL SYSTEM WITH LONG CABLES



3. MULTICHANNEL SYSTEM WITH DIFFERENT-LENGTH CABLES



AKG ACOUSTICS

akg.wireless.sounds.better

HT 4000		
Carrier frequency range	650 to 680, 680 to 710, 720 to 750, 760 to 790, 790 to 820 and 835 to 863 MHz	
Modulation	FM	
Audio bandwidth	35 to 20,000 Hz	
THD	<0.3% typical	
Signal/noise ratio	120 dB(A)	
RF radiation	50 mW max. (ERP)	
Battery life	2 AA size alkaline batteries: 15 hours; BP 4000: 12 hours	
Dimensions	length: 239 mm (9.4 in.); diameter: 39 mm (1.5 in.)	
Net weight	320 g (11.3 oz.)	
Standard accessories	SA 63 stand adapter, 2 AA size dry batteries, Color Coding Kit	
PT 4000		
Carrier frequency range	650 to 680, 680 to 710, 720 to 750, 760 to 790, 790 to 820 and 835 to 863 MHz	
Modulation	FM	
Audio bandwidth	35 to 20,000 Hz	
THD	<0.3% typical	
Signal/noise ratio	120 dB(A)	
RF radiation	50 mW max. (ERP)	
Battery life	2 AA size alkaline batteries: 15 hours typical; BP 4000 rechargeable battery pack: 12 hours typical	
Dimensions	70 x 90 x 25 mm (2.8 x 3.5 x 1 in.)	
Net weight	320 g (11.3 oz.)	
Standard accessories	belt clip, 2 AA size dry batteries, Color Coding Kit	
SR 4000		
RF carrier frequency range	650 to 680, 680 to 710, 720 to 750, 760 to 790, 790 to 820 and 835 to 863 MHz	
Modulation	FM	
Audio bandwidth	35 to 20,000 Hz	
THD	>0.3% typical	
Signal/noise ratio	120 dB(A)	
Audio outputs	balanced 3-pin XLR; unbalanced TS 1/4" jack; output level adjustable to -30, 0, +6 dB	
Dimensions	200 x 44 x 190 mm (7.8 x 1.7 x 7.4 in.)	
Weight	972 g (2.2 lbs.)	
Standard accessories	Power supply, Color Coding Kit, 2 UHF antennas, RMU 4000 rack mounting kit	
Optional accessories	MK 9/10 microphone cable	

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For detailed information on WMS 4000 Series and other AKG products contact your distributor or visit our website:
www.akg.com
Specifications subject to change without notice.

H A Harman International Company

02/04/PROA 1503

world wide wireless with AKG

www.akg.com



AKG ACOUSTICS

HT 4000 / PT 4000

Description

The AKG PT 4000 bodypack and HT 4000 handheld transmitters have identical transmission characteristics, with a **maximum radiated output power of 50 milliwatts**. Through special signal companding circuits (compression and expansion), dynamic range capability greater than 120 dB is delivered at the receiver's output. Audio bandwidth of the system is uniform from 35 Hz to 20 kHz. The usable distances between the receiver and transmitter can be 100 meters (330 ft) or more. Individual handheld microphone and bodypack transmitters are factory-matched to each receiver. Each system operates on a **30 MHz-wide UHF channel** and includes a set of **Presets** containing Intermodulation Free frequencies as well as a search tuning mode with access to up to 1,200 switchable **frequencies**. In the U. S., a total of three bands of 30 MHz channels may be selected. The user may expect a maximum of approximately 50 usable channels in a given locale (depending on the local TV channels and wireless frequencies used). In addition to the modulated audio signal, the transmitters send out a **data-encrypted PilotTone** (at 32,768 Hz) to send important information such as battery status, mute status and more to the system's receiver.

The HT 4000 handheld and PT 4000 bodypack transmitters can be powered by 2 AA batteries and normal **battery life of up to 15 hours** can be expected from standard 1.5-volt alkaline cells. An optional **BP 4000 rechargeable battery pack** is available, featuring Smart Battery Management System Software, and can provide battery life of up to 12 hours plus the remaining battery life can be monitored on the transmitter's & receiver's displays.

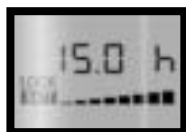
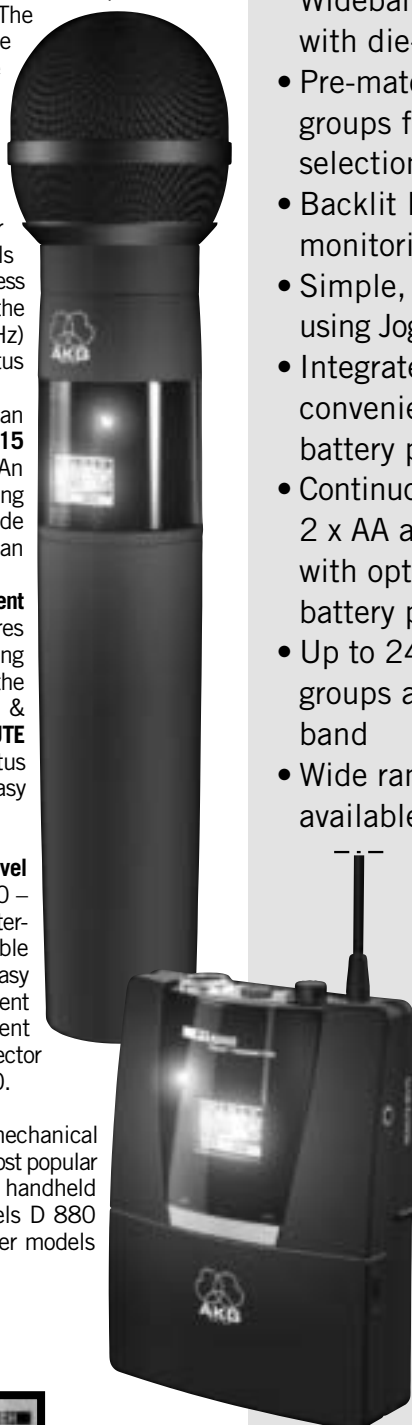
Both transmitters come with a **backlit display** and a **jog element** for easy setup and full status control. The display features information on selected frequency, gain setting, and remaining battery life in hrs. as well as LOCK and MUTE status. Beside the display and the jog element, the controls on the HT 4000 & PT4000 include **lockable ON/OFF** button and a separate **MUTE switch** whose position is easily distinguishable as well as a status indication LED. An **inscribable color code** facility helps easy channel recognition in multi-channel systems.

The PT 4000 bodypack accepts both **microphone and line-level input signals**, and the input sensitivity can be adjusted from 0 – 25 dB for optimum gain matching. The antenna is a quarter-wavelength type that affords easy concealment and comfortable wearing. A **lockable TA-3F Mini-XLR connector** is available for easy connection of a broad range of AKG headset, lavalier or instrument mics (e.g. MicroMic Series microphones) as well as instrument cables. The PT 4000 also comes with a 2.5-mm jack connector suitable for the optional **RemoteMuteSwitch** device RMS 4000.

The HT 4000 handheld transmitter comes with a rugged mechanical solution for **interchangeable microphone modules**. Six of AKG's most popular handheld "vocal" microphone head units are available for the handheld transmitter model. The microphones are the dynamic models D 880 WL1, D 3700WL 1, D 3800 WL 1 as well as the condenser models C 900 WL1, C 5900 WL 1, and C 535 WL 1.

Features

- Wideband UHF handheld transmitters with interchangeable acoustics
- Wideband UHF pocket transmitters with die-cast metal housings
- Pre-matched, optimized frequency groups for quick, easy frequency selection (Presets)
- Backlit LCD Displays for easy status monitoring
- Simple, fool-proof setup procedure using Jog element for quick navigation
- Integrated charging contacts for convenient recharging of optional battery pack
- Continuous operation of >15 hrs. with 2 x AA alkaline batteries or > 12 hrs. with optional BP 4000 rechargeable battery pack
- Up to 24 intermodulation-free preset groups available on each frequency band
- Wide range of optional accessories available for system customization



Battery Status



Auto Gain



Preset Frequencies



AKG ACOUSTICS

Specifications

PT 4000 Bodypack

Audio Bandwidth: 35 – 20,000 Hz

Carrier Frequency Range: 650 – 680, 680 – 710, 720 – 750, 760 – 790, 790 – 820, 835 – 863 MHz

Carrier Frequencies: up to 1,200

Modulation Method: FM

Rated Deviation: ± 20 kHz nominal

S/N Ratio (A-weighted): > 120 dB(A)

Radiated RF Power: 50 mW ERP

Audio Input: Mini XLR, 3 pin

Current Consumption: < 135 mA

Power Requirement: 2 AA 1.5-V batteries or BP 4000 rechargeable pack

Typical Battery Life: Alkaline batteries, 15 hours; BP 4000: 12 hrs.

Size: 2.8 x 3.5 x 1 in. (70 x 90 x 25 mm)

Net Weight: 11.3 oz. (320g) without batteries

HT 4000 Handheld

Audio Bandwidth: 35 – 20,000 Hz

Carrier Frequency Range: 650 – 680, 680 – 710, 720 – 750, 760 – 790, 790 – 820, 835 – 863 MHz

Carrier Frequencies: up to 1,200

Modulation Method: FM

Rated Deviation: ± 20 kHz nominal

S/N Ratio (A-weighted): > 120 dBA

Radiated RF Power: 50 mW ERP

Input Level: 140 dB-SPL @ nominal deviation

Current Consumption: < 125 mA

Power Requirement: 2AA 1.5-V batteries or rechargeable pack BP 4000

Battery Life: Dry batteries, 15 hours, BP 4000: 12 hrs.

Size: length: 9.4 in. (239 mm); diameter: 1.5 in. (39 mm)

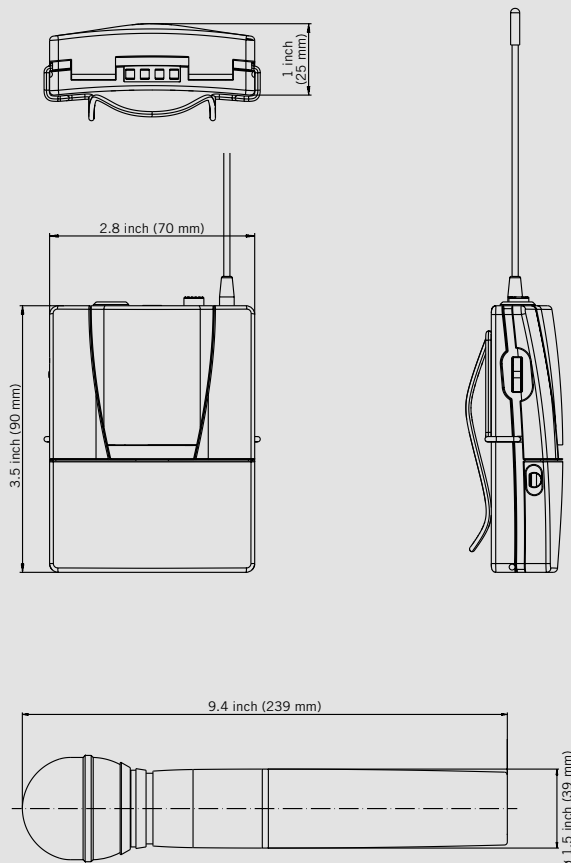
Net Weight: 11.3 oz. (320g) without batteries

Architects and Engineers Specifications

The wireless system shall operate over a 30 MHz UHF frequency range in one of 6 bands from 680 to 863 MHz, with a wide range of possible frequency settings. The wireless microphone system shall incorporate factory-optimized sets of both transmission and receiving frequency modules that are programmed into both transmitters and receivers. Each frequency set shall comprise a 30 MHz UHF band and offer up to 1,200 discrete operating frequencies within that band, with transmitter power not exceeding 50 milliwatts. Both handheld and bodypack type transmitters shall be provided. The bodypack transmitter shall accommodate both microphone and line level inputs. The transmitters shall operate with a companding system that is complemented by the receiver, providing an A-weighted system dynamic range in excess of 120 dB. The transmitters shall indicate input overload via an LED indicator and on a backlit display battery lifetime shall be displayed in hours as well as the transmitting frequency. Handheld transmitters shall have a maximum diameter of 39 mm and a length, including antenna, no greater than 239 mm. The wireless microphone system shall be the AKG Acoustics Model WMS 4000.

Line Drawings

(us standard and metric measures)



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H A Harman International Company

For detailed information on WMS 4000 and other products from AKG contact your dealer or visit www.akg.com
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02/04/Proa-Nr. 1453

www.akg.com



AKG ACOUSTICS

CU 4000 / BP 4000

Description

The AKG charging system 4000 consists of the **CU 4000 charging unit** and the **BP 4000 battery pack**. The charging unit itself is a stand-alone unit in a rugged plastic housing, featuring **2** charging compartments, each mechanically designed to hold either one HT 4000 handheld transmitter, a PT 4000 bodypack transmitter or a BP 4000 spare battery pack.

Two battery packs can be charged simultaneously by the CU 4000, if the battery pack is installed in either the HT 4000 or PT 4000 transmitters. There is no need to remove the battery pack from the transmitters since these transmitters are equipped with on-board charging contacts for a **plug-in charge**.

The **sophisticated charging electronics** of the CU 4000 comprises revolutionary functions to **carefully charge and service the BP 4000 battery packs** over the full lifetime of the battery.

The basic charging function is based on a **trickle charge** system with so-called **inflection point** switch-off automation. Safety switch off occurs by detection of the peak voltage, the negative voltage slope or a predetermined time out. Thus the battery pack is prevented **from overcharging**. An integrated **two-slot power management** system allows the Charging unit to charge two battery packs simultaneously in approximately 1 hour.

Since the BP 4000 battery pack incorporates **micro-processor-controlled surveillance intelligence**, there is a permanent data stream between the Charging Unit and the Battery Pack to protect the batteries from any damage caused by the charging process. A **charge balance management** circuit controls the exact amount of energy to be charged in the pack as the amount that was taken out of the pack (2nd level overcharge protection). The charge balance management also features a **self-discharging counter** used to detect the exact battery pack status after a long period of storage. With the help of this charge balance management, an accurate **remaining battery life display** can be realized on the transmitters (transferred via pilot tone to the SR 4000 receiver).

All necessary battery pack data will be stored in the **internal RAM or EPROM-memory** of the pack. All predetermined and initial parameters are stored in EPROM-memory of the battery pack to perform a correct recovery cycle.

The battery pack also features an **internal temperature surveillance circuit** that adjusts the charging current of the CU4000 to protect the device in case of low or high temperature during loading.

To reduce the so-called memory effect which leads to decreasing battery capacity, the communication between the BP 4000 and the CU 4000 is able to calculate if the batteries need a **recovery cycle** by the help of the stored date in the BP 4000. In this case, the CU 4000 draws the user's attention to this possible problem and suggests starting a recovery cycle. The user can activate the recovery cycle via a recovery button on the CU 4000's front panel. The recovery cycle refreshes the battery pack by charging and discharging cycles to determine the actual capacity and initialize the capacity counter for accurate use time calculation.

Other controls include a **3-step LED display** showing the charging status. A **lockable DC connector** on the rear panel of the CU allows the unit to be powered by either an external DC adapter or by the optional **PSU 4000** central power supply.

Due to the sophisticated charging system, the battery pack can power the HT 4000 and PT 4000 for **up to 12 hours** with one full charging cycle, plus its gentle charging function will ensure **up to 1,000 charging cycles**.

Features

- Intelligent battery supply system comprising CU 4000 charger and BP 4000 battery pack
- Microprocessor controlled charge/discharge monitoring function
- One-hour quick charging and Battery Recovery Management
- Charging compartment allows battery pack to be charged inside the transmitter



AKG ACOUSTICS

Specifications

CU 4000

Charging current: 1.5 A

Operating voltage: 12 VDC, 1.3 A

Charging time: 1 hour typical

Recovery cycle: approx. 8 hours

Dimensions: 3.6 x 6.8 x 3.3 in. (92 x 173 x 85 mm)

Weight: approx. 20.5 oz. (580 g)

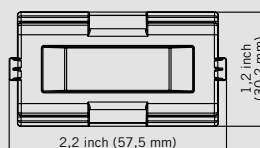
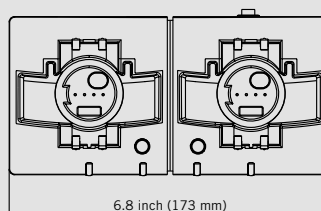
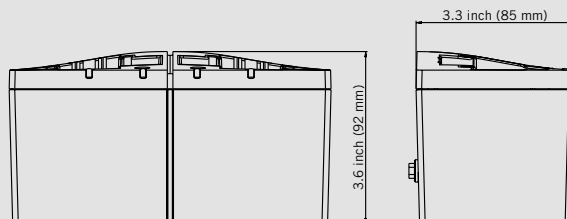
Standard accessories: BP 4000 battery pack, power supply



Several chargers can be mounted in a rugged flightcase as a compact, "roadproof" solution for large systems.

Line Drawings

(us standard and metric measures)



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Specifications subject to change without notice.

02/04/Proa-Nr. 1453



AKG ACOUSTICS

SR 4000

Description

a) Hardware

The SR 4000 UHF receiver is one standard EIA rack unit high and one-half rack unit wide with a full metal chassis. Thus, two receivers can be placed side-by-side in one rack space (rack-mount hardware included). The SR 4000 has a 30 MHz wide UHF band containing presets with intermodulation-free frequencies as well as a tuning mode with access to up to 1,200 switchable frequencies. The SR 4000 utilizes operates as a true diversity receiver, in which two completely separate antenna, receiver and demodulator sections are operational at all times. The receiver includes a Pilot Tone Decoder Unit that decodes transmitter data out of the Pilot Tone's data stream. This enables the SR 4000 to show battery charge status and mute status of the transmitter on the integrated, back-lit color display. This data is also available at the **Logic Output Connector** on the rear panel. The HT4000 & PT4000's Pilot Tone allows automatic muting of the SR's audio output in case of invalid or corrupted signal (**Tone Code Squelch TCSQ**). If necessary this automatic squelch option can be overruled by a manual squelch setting. For **PC control** and monitoring of the SR unit a special **data port** is available on the rear panel of the SR 4000.

The True Diversity receiver concept offers maximum dynamic range, greater freedom from interference and noiseless switching from one receiver to the other. Both balanced 3-pin XLR and unbalanced 1/4-inch output connectors are available. An output level switch allows the adjustment of 3 output levels (-30, 0, +6 dB) for optimum system gain structure. Also available on the rear panel are a data port connector, a logic output, 2 x BNC antenna Connectors and a lockable DC input jack.

Controls on the SR 4000 include a backlit display and a Jog wheel to adjust various receiver settings such as squelch threshold, carrier frequency selection, user's name, scan & rehearsal mode selection and many more. Indicators on the unit include mute, audio level bargraph, RF level bargraph, 6x14 segment alphanumeric display and menu control. A unique, programmable Status **Control Ring** shows the most important system data at one glance.

Each SR 4000 can accommodate a pair of diversity antennas; however, when a number of receivers are used in a single system, a master antenna pair (with or without antenna booster, directional and omnidirectional antennas) can be used to feed all receivers. A wide range of accessories such as an antenna splitter, antenna combiner and antenna booster are provided for operational flexibility and ease of installation.

b) Software

The internal software of the SR 4000 offers a wide range of control features for an easy setup even in complex multi-channel systems under difficult rf conditions. Most helpful are features like **AutoSetup** (automatic intermodulation free channel selection), **EnvironmentScan** (scanning of the unit's RF range), and **RehearsalMode** (recording of important system data during rehearsal helps optimize the system setup). Important settings like frequency, squelch, unit name, etc. can be edited and stored via an easy menu structure. Even more control & monitoring features are available via the optional **MCS 4000** (MissionControl Software) **PC Control Software**.



AutoSetup



RehearsalMode



EnvironmentScan



Battery Status / TX Mute



Features

- Wideband true-diversity frequency-agile UHF receiver with 1,200 channels and all-metal chassis
- Factory-selected, pre-matched frequency groups for quick system setup
- Backlit color LCD allows easy monitoring of operating parameters at a glance
- Jog wheel control allows quick, easy parameter adjustments
- AutoSetup, EnvironmentScan and Rehearsal Modes for quick, easy system setup
- Bodypack and handheld transmitters available with a wide selection of AKG microphones
- Up to 24 intermodulation-free frequencies per frequency group
- Wide range of optional accessories available for system customization



AKG ACOUSTICS

Specifications

SR 4000 Receiver

RF Carrier Frequency Ranges: 650 – 680, 680 – 710, 720 – 750, 760 – 790, 790 – 820, 835 – 863 MHz

Carrier Frequencies: up to 1,200 per range (dependent on local conditions)

Modulation Method: FM

Rated Deviation: 20 kHz at 1 kHz (sine wave)

Squelch Threshold: Adjustable between -70 and -100 dBm

Audio Bandwidth: 35–20,000 Hz

THD at 1 kHz: < 0.3% at rated deviation

Signal-to-noise: typ. 120 dBA

Audio Output: Balanced 3-pin XLR-M, switchable from -30 to +6 dB; unbalanced 6.5 mm (1/4-in.) jack

Current Consumption: 150 mA typical

Power Requirement: 11 to 15 V dc or ac from external power supply

Size: 7.8 x 7.4 x 1.7 in. (200 x 190 x 44 mm)

Net Weight: 34 oz. (972 g)

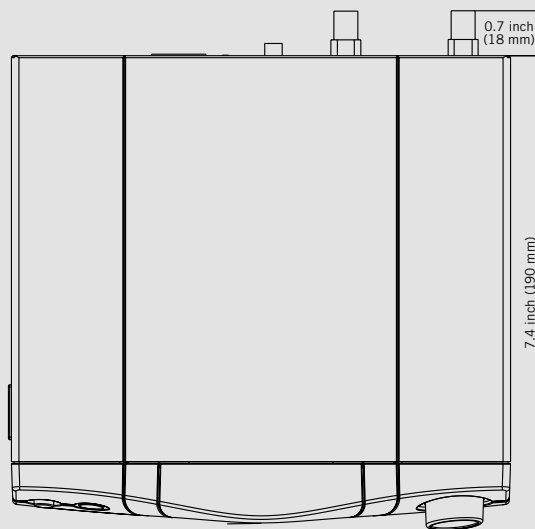
Architects and Engineers Specifications

The wireless receiver shall operate over a 30 MHz UHF frequency range in one of 6 bands from 680 MHz to 863 MHz, with a wide range of possible frequency settings. The wireless microphone system shall incorporate factory-optimized sets of both sending and receiving frequency modules that are built into both transmitters and receivers. Each frequency set shall comprise a 30 MHz UHF band and offer up to 1,200 discrete operating frequencies within that band. The receiver shall operate on the true diversity principle, and the switching circuit shall be inaudible. Total harmonic distortion at 1 kHz for rated deviation shall be no greater than 0.3%. The receiver shall provide for a manual squelch adjustment as well as an automatic squelch option (tone code squelch) for optimum system operation. Audio output shall include a balanced XLR connector as well as an unbalanced 6.3 mm / 1/4-inch jack connectors. The output from the 3-pin XLR-type connector shall be adjustable in 3 steps (-30, 0, +6 dB). A data port for connecting a pc-controlled network and logic out connector shall be provided. The receiver shall be controlled by a jog wheel and shall provide a backlit color display as well as a programmable LED ring (red/green) showing the overall system status.

The wireless receiver shall be the AKG Acoustics Model SR 4000.

Line Drawings

(us standard and metric measures)



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02/04/Proa-Nr. 1453



AKG ACOUSTICS

WMS 4000

Antenna System Components

Description

The AKG Model WMS 4000 is an **extremely flexible and sophisticated** wireless microphone system for multi-user, multi-channel applications. A wide range of accessories is available to customize the system to meet your specific needs and deliver tremendous operational flexibility and ease of installation. In the following, all the available components for setup of a sophisticated antenna distribution scheme for multi-channel systems are described:

a) PS 4000 Multi-Coupler

The PS 4000 multi-coupler combines an antenna splitter and dc power distribution in a chassis that is one EIA standard rack unit high and one-half rack unit wide in a **full metal housing**. Thus, two multi-coupler units can be placed side by side (**Rack Mount hardware kit included**) or one PS 4000 side-by-side with e.g. an SR 4000 receiver unit.

The PS 4000 has a **wide-band antenna signal amplifier/divider** with a **220 MHz-wide UHF** bandwidth, making it suitable for all **available WMS 4000 channels**. The multi-coupler provides 2 BNC antenna inputs. The incoming diversity signal is internally amplified and divided to 4 pairs of diversity outputs, thus the splitter provides 2 x 4 BNC antenna output connectors. 2 additional BNC outputs are available on the rear panel for cascading the diversity antenna signal to another multi-coupler. **Up to 3 multi-couplers can be cascaded to supply antenna signal to 12 receivers from a single pair of antennas.**

The PS 4000 offers the following displays: one blue LED indicator for each antenna input showing that the connected cables, signal amplifier and antennas are fully operational. A red LED indicator will indicate a failure of one of the components prior to the PS 4000.

A 10-position switch for **compensation of the connected cable length** is available on the front panel to **optimize the system's performance**. On the rear panel of the PS 4000, a **DC input can be** hooked to either a single DC adapter or to the optional **central power supply unit, which** can be connected to power the antenna splitter and the connected receivers and antennas remotely via the antenna cables.



Features

- High quality RF components to build up extremely flexible and sophisticated antenna networks with large antenna cable lengths...
- ... and to build up distributed antenna networks for room sharing applications
- Cascadeable, modular Antenna splitter PS 4000
- Ultra linear Antenna Booster AB 4000 in waterproof housing
- High efficient passive and active directional antennas SRA 1 & SRA 2B
- Discreet omnidirectional booster antenna RA 4000 B for in & outdoor use
- Wide range of useful accessories



b) AB 4000 Antenna Amplifier

The AB 4000 is an in-line antenna signal amplifier used to compensate for the signal loss from cable attenuation in **large antenna networks**. The amplifier comes with an **ultra-linear rf amplifier circuit** that offers **up to 17 dB** of amplification and can be **remotely powered by the PS 4000** or by an external AC adapter. Therefore it can be used with up to 90 m (297 ft) of RG58 cable or 220 m (726 ft) of RG213 cable. **In total, 2 AB 4000s can be cascaded** in series without increasing the noise of the wireless microphone system. To **optimize the system's performance**, the AB 4000 comes with a 10-position switch for compensation **of the connected cable length**. The antenna booster also is equipped with 2 BNC connectors and 1 power indicator LED. The splitter comes in a **waterproof metal housing** and therefore is even suitable for use outdoors.

c) RA 4000 B Amplified Antenna

The RA 4000B is an active omnidirectional antenna. Specially designed for the WMS 4000 wireless microphone system, it comes with a specially-tuned wideband UHF amplifier, perfectly matched to all **WMS 4000 channels**. The integrated **ultra linear rf amplifier circuit** can be **remotely powered** by the PS 4000 antenna splitter and offers **approximately 17 dB** of amplification to compensate for the cable attenuation of up to 40 m (132 ft) of RG58 cable or 100 m (330 ft) of RG213 cable. If necessary, the SRA 2 can also be cascaded with the optional AB 4000 antenna amplifier to compensate for even more antenna cable length. The antenna provides a BNC connector for connecting a BNC antenna cable.

d) SRA 1 Passive Directional Antenna

The SRA1 is a passive UHF antenna with a hypercardioid polar pattern. The specific design of the antenna provides maximum on-axis gain of approximately 6 dB, which is equivalent to increasing the transmitter's radiated power by four times. The antenna provides a BNC connector for connecting an antenna cable.

e) SRA 2B Active Directional Antenna

The SRA 2B is an active directional panel antenna. Specially designed for the WMS 4000 wireless microphone system, the SRA 2B comes with custom-tuned wideband UHF tuning, suitable for **all WMS 4000 channels**. The directional polar pattern offers approximately 70° of pickup with an on-axis amplification factor of approximately 6 dB. The SRA 2B can typically overcome distances of up to 200m (660 ft) on-axis, line-of-sight. The integrated **ultra-linear rf amplifier circuit** could be **powered** by the PS 4000 multi-coupler and offers **amplification of approx. 17 dB** to compensate for cable attenuation of up to 40 m (132 ft) of RG58 cable or 100 m (330 ft) of RG213 cable. If necessary, the SRA 2B can be cascaded with the optional AB 4000 antenna amplifier for compensation of even greater antenna cable length. The antenna input utilizes BNC connectors for connecting the antenna cable. On request the SRA 2B can be equipped with an **optional laser positioning system** to optimize the antenna placement & positioning.

f) ASU 4000 Antenna Supply Unit

The ASU 4000 is an in-line power supply unit for use in **large antenna networks** to feed 12 V DC into an antenna line. With the help of the ASU 4000, all connected AKG antenna network components such as the AB 4000, SRA 2B and RA 4000B can be **remotely powered** even if there is no power coming from the connected PS4000 multi-coupler (e.g. in distributed antenna networks using standard antenna combiners see also in Fig. 3 & 4). The ASU 4000 is equipped with 2 BNC connectors, 1 power indicator LED as well as a DC input for connection of the AC adapter. The ASU 4000 is built into a **waterproof metal housing** and therefore is suitable for outdoor use.



Specifications

PS 4000 Multi-Coupler

Type: 2 x 1 to 4 SR4000 + 2 x 1 PS (Cascade)

Carrier frequency range: 650 to 870 MHz

Cable attenuation compensation: +2, 0, -2, -4, -6, -8 dB, selectable

RF inputs: 2 BNC sockets, 50 ohms

RF outputs: 10 BNC sockets, 50 ohms

Operating voltage: 10 VDC

Dimensions: 7.8 x 7.4 x 1.7 in. (200 x 190 x 44 mm)

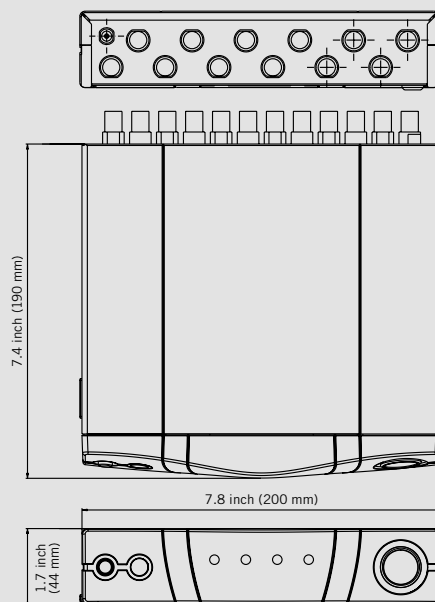
Weight: 2.2 lbs. (970 g)

Standard accessories: power supply, RMU 4000 rack mounting kit

Optional accessories: MK PS connecting cable

Line Drawings

(us standard and metric measures)



RA 4000 B Omni Booster Antenna

Carrier frequency range: 650 to 870 MHz

Gain: 17 dB

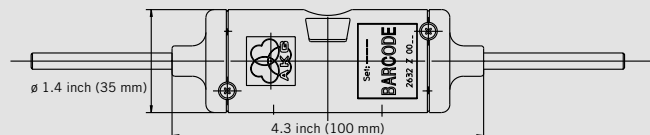
RF input: 1 BNC socket, 50 ohms

RF output: 1 BNC socket, 50 ohms

Operating voltage: 8 VDC from PS 4000 or ASU 4000 via connecting cable

Dimensions: 4.3 x 1.4 in. (110 x 35 mm)

Weight: 3.5 oz. (100 g)



SRA 1 Directional Antenna (passive)

Carrier frequency range: 658 to 945 MHz

Gain: 6 dB

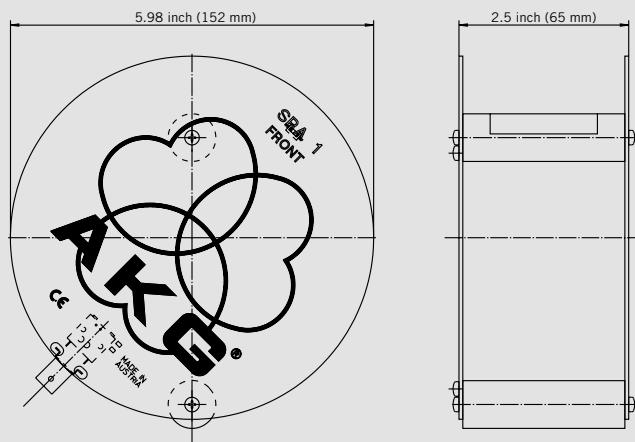
Coverage angle: 70°

Front-to-back ratio (180°): 13 dB min.

Off-axis attenuation (90° to 110°): 25 dB

Dimensions: diameter: 5.98 in. (152 mm); depth: 2.5 in. (65 mm)

Weight: 6.4 oz. (180g)



AKG ACOUSTICS

Specifications

SRA 2B Active Directional Antenna

Carrier frequency range: 650 to 870 MHz

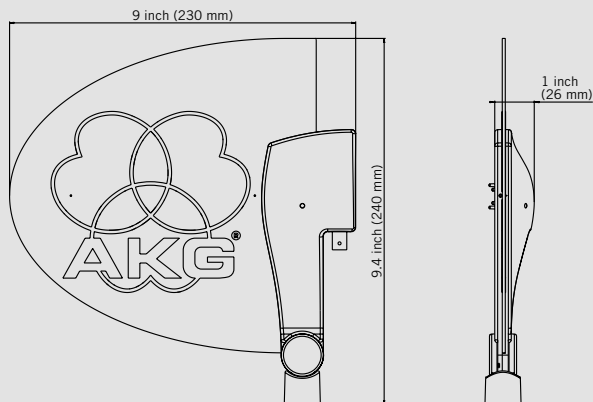
Antenna gain: 6 dB

Coverage angle: 70°

Booster gain: 17 dB

Dimensions: 9 x 9.4 x 1 in. (230 x 240 x 26 mm)

Weight: 8.8 oz. (250 g)



AB 4000 Antenna Amplifier

Carrier frequency range: 650 to 870 MHz

Gain: 17 dB

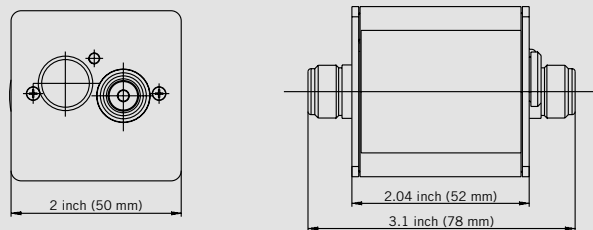
RF input: 1 BNC or N-socket, 50 ohms

RF output: 1 BNC or N-socket, 50 ohms

Operating voltage: 8 VDC from PS 4000 or ASU 4000 via connecting cable

Dimensions: 3.1 x 2 x 2 in. (78 x 50 x 50 mm)

Weight: 5.3 oz. (150 g)



ASU 4000 Antenna Supply Unit

Carrier frequency range: 650 to 870 MHz

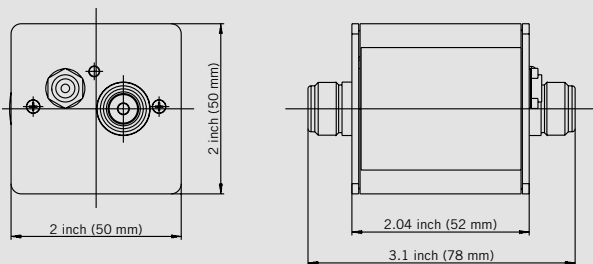
RF input: 1 BNC or N socket, 50 ohms

RF output: 1 BNC or N socket, 50 ohms

Operating voltage: 12 VDC

Dimensions: 3.1 x 2 x 2 in. (78 x 50 x 50 mm)

Weight: 5.3 oz. (150 g)



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